Table II. Patency rates in claudicant patients treated with endovascular modality

	6 mos	*12 mos*	*18 mos*	*24 mos*	*30 mos*
Primary patency BPG	65.6 ± 8.4	51.6 ± 9.1	25.8 ± 8.3	22.1 ± 7.9	22.1 ± 7.9
Primary patency No BPG	93.7 ± 2.2	75.4 ± 4.3	64.7 ± 4.9	60.2 ± 5.2	58.1 ± 5.5
Primary patency P Values	.0001	.0001	.0001	.0001	.0001
Primary assisted patency BPG	87.3 ± 6.0	75.9 ± 8.0	70.5 ± 9.1	65.1 ± 9.9	65.1 ± 9.9
Primary assisted patency No BPG	96.8 ± 1.6	90.9 ± 2.8	87.1 ± 3.4	83.8 ± 4.0	79.5 ± 4.8
Primary assisted patency P Values	.031	.025	.031	.023	.039
Secondary patency BPG	90.4 ± 5.3	90.4 ± 5.3	83.9 ± 7.9	77.5 ± 9.6	77.5 ± 9.6
Secondary patency No BPG	98.4 ± 1.1	96.4 ± 1.8	94.8 ± 2.4	91.3 ± 3.3	91.3 ± 3.3
Secondary patency *P* values	.03	.13	.06	.05	.05

BPG, Bypass grafting.

Long-Term Outcomes of Diabetic Patients Undergoing Endovascular Infrainguinal Interventions

Abularrage CJ, Conrad MF, Crawford RS, et al

Objectives: Diabetes has traditionally predicted poor outcomes after lower extremity revascularization for peripheral vascular disease (PVD). The purpose of this study was to assess the influence of diabetes on long-term outcomes of percutaneous transluminal angioplasty (PTA) in patients with PVD.

Methods: From January 2002 to December 2007, 1075 patients underwent PTA. Endpoints including primary patency (PP), assisted patency (AP), limb salvage, and survival were evaluated in the entire cohort, as well as in diabetic (DM) and non-diabetic (non-DM) patients, using Kaplan-Meier and Cox regression analyses.

Results: There were 533 DM and 542 non-DM patients. Significant clinical and demographic features are summarized in the Table. Median follow-up was 34 months. In the entire cohort, the five-year PP was 42% ± 2.4%, AP was 81% ± 2.0%, limb salvage was 89% ± 1.6%, and survival was 60% ± 2.2%. On univariate analysis, diabetes was associated with inferior five-year PP (DM: 37% ± 3.4% vs. non-DM: 46% ± 3.3%, P =.009), limb salvage (84% ± 2.6% vs. 93% ± 1.8%, P < .0001), and survival (52% ± 3.2% vs. 68% ± 2.9%, P < .0001). Assisted patency did not differ between DM and non-DM (P = .18). In the entire cohort, DM (1.25; [1.01-1.54]; P = .04), single vessel peroneal runoff (1.54; [1.16-2.08]; P = .003), and dialysis (1.59; [1.10-2.33]; P = .02) were associated with decreased PP on multivariate analysis. DM was also an independent predictor of death after PTA (1.32; [1.02-1.67]; P = .03). Critical limb ischemia and dialysis were the only variables on multivariate analysis to predict both limb loss and death.

Conclusions: Diabetes is an independent predictor of decreased PP and death after PTA. Although acceptable assisted patency rates can be achieved with close surveillance and reintervention, long-term limb salvage and survival remain inferior in the diabetic population due to a more severe cardiovascular risk profile and clinical presentation.

Table. Clinical and demographic features

	DM	*Non-DM*	P
Male gender	368 (69%)	323 (60%)	.001
Coronary artery disease	368 (69%)	293 (54%)	<.0001
Dialysis	56 (11%)	22 (4%)	<.0001
Critical limb ischemia	284 (53%)	155 (24%)	<.0001
Single vessel runoff	205 (38%)	126 (23%)	<.0001
Multi-level intervention	125 (23%)	83 (15%)	.0007
Isolated tibial intervention	58 (11%)	31 (6%)	.002

DM, Diabetic.

Outcomes of Endoluminal Re-intervention for Recurrent Disease after Percutaneous Iliac Angioplasty and Stenting

Davies MG, Bismuth J, Naoum J, Houssan H, Peden EK, Lumsden AB

Objectives: Endovascular therapy for symptomatic atherosclerotic iliac artery stenosis is common but is associated with a significant restenosis rate. This study evaluates the outcomes of percutaneous therapy for symptomatic restenosis (>50% on angiography) after iliac intervention at a national academic medical center.

Methods: We performed a retrospective analysis of records from patients who underwent endovascular intervention for symptomatic atherosclerotic iliac artery stenosis and were followed by duplex ultrasound between January 1990 and January 2009.

Results: Eight hundred seventy-nine patients underwent 1444 iliac artery interventions. One hundred fifty-six vessels restenosed with an actuarial restenosis rate of 20% ± 2% at five years. Presenting symptoms, angioplasty alone, a concurrent occluded superficial femoral artery (SFA), and increasing complexity of the iliac intervention were associated with restenosis. One hundred forty of these restenoses (90%) were associated with recurrent symptoms. One hundred nine (78%) underwent repeat angioplasty and 31 underwent bypass surgery. The remainder were observed. The 109 percutaneous interventions were performed in ** patients (57% male; average age, 58 years; range, 38-87 years). Eighty-five percent had hypertension, 76% had hyperlipidemia, 54% had metabolic syndrome, 41% were considered diabetic, and 17% had chronic renal insufficiency (eGFR<60). There was a 1% technical failure rate. Comparisons of demographics, presenting symptoms, and outcomes between those patients undergoing intervention for a primary lesion and those for a recurrent lesion are shown in the Table. By Cox proportional hazards and multivariate analysis, presenting symptoms, female gender, and eGFR <60ml negatively influenced cumulative patency of recurrent lesions. An occluded SFA but not TASC lesion negatively influences cumulative patency of recurrent lesions. Restenosis and recurrent symptoms were tightly associated

Conclusions: Percutaneous re-intervention for iliac artery restenosis is safe and effective with equivalent outcomes to primary intervention. The patients are more likely to be younger and of female gender than patients presenting for primary intervention. Both patency and functional outcomes after re-intervention are worse than primary interventions.

Table. Demographic variables and outcomes

	Primary	*Recurrent*	P *value*
Gender (% male)	61	57	ns
Age (mean ± SD; years)	65 ± 12	58 ± 11	ns
30-day mortality (%)	<1	<1	ns
Morbidity (%)	4	4	<.05
Cumulative patency (% patent)*	95 ± 2	83 ± 2	<.05
Restenosis (% free)*	87 ± 3	61 ± 5	<.01
Clinical benefit (% retained)*	87 ± 2	74 ± 2	<.05

*Mean ± SEM at five years follow up.

Limb Ischemia During Femoral Cannulation for Cardiopulmonary Support

Foley PJ, Morris RJ, Woo EY, Acker MA, Wang GJ, Jackson BM

Objectives: Extracorporeal membrane oxygenation and extracorporeal cardiopulmonary support (ECMO/CPS) are potentially life-saving techniques for patients with cardiopulmonary collapse. Complications include lower extremity ischemia from femoral cannulation. We examined the outcomes of patients placed on ECMO/CPS, including the rate of limb ischemia.

Methods: All instances of ECMO/CPS over a three-year period (2006 to 2009) at a single university hospital were examined retrospectively for: cannulation strategy, perfusion strategy, mortality, and limb ischemia. Potential predictors of limb ischemia with femoral artery cannulation were age, gender, body surface area (BSA), body mass index (BMI), and cannula size.

Results: Fifty-eight patients were placed on ECMO/CPS. Of these, 43 patients (74%) had femoral arterial cannulation. In 10 patients, the superficial femoral artery was cannulated prophylactically (without antecedent limb ischemia), and perfused from a branch of the ECMO/CPS circuit. In seven of the remaining 33 patients (21%), all male, limb ischemia developed, requiring decannulation with fasciotomy (n = 4) or additional cannulation of the superficial femoral artery (SFA) with branching of the ECMO/CPS circuit (n = 3). One patient with ipsilateral leg ischemia required eventual amputation. Patients with limb ischemia were significantly younger than those who did not develop limb ischemia (P = .001). BSA, BMI, and cannula size did not predict limb ischemia. Overall 30-day mortality following the initiation of CPS/ECMO was 79%. There was no correlation between limb ischemia and mortality.

Conclusions: Younger patients may be at increased risk for lower extremity arterial insufficiency with femoral cannulation for ECMO/CPS. Prophylactic or expectant SFA cannulation are reasonable approaches, and, given that mortality does not increase with limb ischemia, SFA cannulation from a branch of the circuit should be instituted liberally when required.